

Mineral Industry Surveys

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CHROMIUM IN AUGUST 2004

On the basis of gross weight, consumption of chromium ferroalloys and metal in August 2004 increased slightly compared with revised consumption in July 2004, according to the U.S. Geological Survey.

Included in this Mineral Industry Surveys are U.S. salient chromium statistics, U.S. Government stockpile inventory of chromium materials in August 2004, consumption by end use and consumer stocks of chromium ferroalloys and metal at the end of August 2004, U.S. foreign trade data for selected chromium-containing materials in July 2004, and chromite ore prices.

Update

The Defense National Stockpile Center (DNSC) announced the sale of 13,608 metric tons (t) of low-carbon ferrochromium

in September. The sale was valued at \$18 million or \$0.60 per pound-gross weight. Of the awarded quantity, about 80% was for export and the remainder for domestic consumption (Defense National Stockpile Center, 2004a). DNSC announced the sale of 3,629 t of high-carbon ferrochromium in September. The sale was valued at \$3.42 million or \$0.428 per pound-gross weight (Defense National Stockpile Center, 2004b).

References Cited

- Defense National Stockpile Center, 2004a, Stockpile accepts ferrochromium offers: Defense National Stockpile Center, News Release DNSC-04-2513, September 20, 1 p.
- Defense National Stockpile Center, 2004b, Stockpile announces ferrochromium sales for September 2004: Defense National Stockpile Center, News Release DNSC-05-2515, October 5, 1 p.

TABLE 1
U.S. SALIENT CHROMIUM STATISTICS¹

(Metric tons, gross weight)

	2003	2004					
	January- December ²	May	June	Second quarter	July	August	January- August ²
Production:							
Stainless steel production ³	2,210,000	196,000	214,000	562,000 ⁴	189,000	220,000	1,550,000 ⁴
Components of U.S. supply:							
Stainless steel scrap receipts	757,000	66,000	67,500	199,000	62,700	63,300	534,000
Stainless steel scrap consumption	1,070,000	95,400	94,100	284,000	92,500 ^r	96,200	754,000
Imports for consumption:							
Chromite ore	173,000	10,000	6,600	30,000	461	NA	67,500 ⁵
Ferrochromium:							
More than 4% carbon	366,000	21,900	50,800	121,000	22,100	NA	199,000 ⁵
More than 0.5%, but not more than 3% carbon	5,340	759	1,580	3,300	20	NA	3,350 ⁵
Not more than 0.5% carbon	19,500	1,980	5,920	10,900	1,120	NA	17,800 ⁵
Ferrochromium silicon	38,700	500	4,710	11,300	--	NA	16,400 ⁵
Total ferroalloy imports	429,000	25,100	63,100	146,000	23,300	NA	236,000 ⁵
Chromium metal ⁶	8,570	800	700	2,730	923	NA	6,040 ⁵
Stainless steel	639,000	71,300	67,400	197,000	71,000	NA	428,000 ⁵
Stainless steel scrap	89,200	9,070	9,060	30,200	8,850	NA	87,200 ⁵
Distribution of U.S. supply:							
Industry consumer, chromium ferroalloys and metal	420,000	36,900	35,900	109,000	37,000 ^r	37,600	289,000
Exports:							
Chromite ore	103,000	3,920	11,000	16,200	8,180	NA	28,100 ⁵
Chromium ferroalloys:							
High-carbon ferrochromium	3,180	216	405	1,040	457	NA	4,430 ⁵
Low-carbon ferrochromium	1,230	21	56	158	109	NA	724 ⁵
Ferrochromium silicon	481	133	211	463	147	NA	924 ⁵
Total ferroalloy exports	4,890	370	671	1,660	713	NA	6,080 ⁵
Chromium metal	941	177	79	325	100	NA	631 ⁵
Stainless steel	327,000	25,200	25,900	78,300	27,600	NA	198,000 ⁵
Stainless steel scrap	505,000	41,300	62,900	140,000	34,700	NA	291,000 ⁵
Stocks at end of period:							
Industry consumer, chromium ferroalloys and metal	16,700	11,900	12,300	XX	10,800 ^r	11,200	XX
Government stockpile:							
Chromite ore	154,000	--	--	XX	--	--	XX
Chromium ferroalloys	683,000	638,000	633,000	XX	622,000	619,000	XX
Chromium metal	6,660	6,660	6,660	XX	6,670	6,670	XX

¹Revised. NA Not available. XX Not applicable. -- Zero.

¹Data are rounded to no more than three significant digits; may not add to totals shown.

²May contain revised data.

³Data on stainless steel production reported by American Iron and Steel Institute; monthly, quarterly, and year-to-date production of stainless and heat-resisting raw steel.

⁴Includes revised data that is not broken out by specific month.

⁵Includes January through July data; August data not available.

⁶Includes waste and scrap and other.

TABLE 2
U.S. REPORTED CONSUMPTION AND STOCKS OF CHROMIUM PRODUCTS IN 2004¹

(Metric tons, gross weight unless otherwise noted)

	July	August	January- August ²
Consumption by end use:			
Alloy uses:			
Iron alloys:			
Steel:			
Carbon steel	377	366	2,640
High-strength low-alloy steel	603	723	5,080
Stainless and heat-resisting steel	32,100	32,600	251,000
Full alloy steel	1,800	1,640	12,200
Electrical steel	W	W	W
Tool steel	467	476	3,790
Unspecified steel	W	W	W
Cast irons	W	W	W
Superalloys	706	739	5,940
Other alloys ³	66 ^r	47	409
Total	37,000 ^r	37,600	289,000
Total, chromium content	21,700	22,100	169,000
Consumption by material:			
Low-carbon ferrochromium	1,960 ^r	2,040	15,800
High-carbon ferrochromium	31,300	31,700	245,000
Ferrochromium silicon	3,180	3,260	23,700
Chromium metal	391	393	3,050
Chromite ore	W	W	W
Chromium-aluminum alloy	30 ^r	30	259
Other chromium materials	W	W	W
Total	37,000 ^r	37,600	289,000
Total, chromium content	21,700	22,100	169,000
Consumer stocks:			
Low-carbon ferrochromium	1,900 ^r	1,810	XX
High-carbon ferrochromium	7,530	8,000	XX
Ferrochromium silicon	1,110	1,160	XX
Chromium metal	230	164	XX
Chromite ore	W	W	XX
Chromium-aluminum alloy	35 ^r	28	XX
Other chromium materials	W	W	XX
Total	10,800 ^r	11,200	XX
Total, chromium content	6,490 ^r	6,670	XX

^rRevised. W Withheld to avoid disclosing company proprietary data; included in "Total." XX Not applicable.

¹Data are rounded to no more than three significant digits; may not add to totals shown.

²May include revised data.

³Includes welding and alloy hard-facing rods and materials; wear- and corrosion-resistant alloys; and aluminum, copper, magnetic, nickel, and other alloys.

TABLE 3
U.S. GOVERNMENT STOCKPILE INVENTORY OF CHROMIUM MATERIALS^{1,2}

(Metric tons)

Period	Chromite ore		Chromium ferroalloys		Chromium metal
			High-carbon ferro-chromium	Low-carbon ferro-chromium	
2003:					
August	71,500 ³	82,100	484,000	220,000	7,150
September	70,900	82,600 ³	482,000	218,000	7,100
October	71,500 ³	82,600	477,000	218,000	7,120 ³
November	71,500	82,600	472,000	217,000	7,120
December	71,500	82,600	466,000	217,000	6,660
2004:					
January	--	82,600	462,000	215,000	6,660
February	--	82,100	453,000	212,000	6,660
March	--	82,100	453,000	212,000	6,660
April	--	--	436,000	209,000	6,660
May	--	--	430,000	208,000	6,660
June	--	--	425,000	208,000	6,660
July	--	--	414,000	208,000	6,670
August	--	--	412,000	206,000	6,670

-- Zero.

¹Data are rounded to no more than three significant digits.

²These Government stocks are reported by the Defense National Stockpile Center in Inventory of Stockpile Materials R-1, which reports uncommitted inventory. Uncommitted inventory is that inventory for which there is no sales contract. Committed inventory is that inventory for which there is a sales contract, however, the material has not yet been shipped. For chromium materials, the R-1 report includes chromium materials that (1) meet specifications and are held in excess of goal and (2) do not meet specifications and are held in excess of goal. The R-1 report excludes chromium materials that are committed and awaiting shipment.

³The increase resulted from the reclassification of physical inventory from committed to uncommitted. It did not result from the addition of chromium materials to the stockpile.

Source: Defense National Stockpile Center.

TABLE 4
U.S. EXPORTS OF CHROMITE ORE, CHROMIUM FERROALLOYS, AND METAL¹

Period	Chromite ore		Chromium ferroalloys ²			Chromium metal ³	
	Gross weight (metric tons)	Value (thousands)	Gross weight (metric tons)	Chromium content (metric tons)	Value (thousands)	Gross weight (metric tons)	Value (thousands)
2003:							
July	985	\$202	273	150	\$252	95	\$1,030
August	22,900	949	387	232	455	119	1,320
September	17,200	626	378	211	479	47	1,160
October	1,030	214	393	208	485	72	1,350
November	634	194	462	262	502	152	2,120
December	54,600	4,090	502	285	548	65	958
January-December	103,000	7,410	4,890	2,830	5,240	941	11,900
2004:							
January	223	74	583	344	767	76	1,520
February	2,510	548	685	409	1,040	76	1,660
March	938	290	2,440	1,400	2,940	54	1,710
April	1,340	359	623	348	735	69	2,230
May	3,920	480	370	198	443	177	1,850
June	11,000	1,570	671	362	931	79	1,400
July	8,180	2,130	713	398	1,000	100	1,570
January-July	28,100	5,450	6,080	3,460	7,860	631	11,900

¹Data are rounded to no more than three significant digits; may not add to totals shown.

²Includes low-, medium-, and high-carbon ferrochromium and ferrochromium silicon.

³Includes chromium metal waste and scrap and unwrought powders.

Source: U.S. Census Bureau.

TABLE 5
U.S. IMPORTS FOR CONSUMPTION OF CHROMITE ORE, FERROCHROMIUM, AND CHROMIUM METAL¹

(Metric tons)

	2003	2004			
	January- December ²	May	June	July	January- July ²
Chromite ore:					
Not more than 40% chromic oxide:					
Gross weight	77	--	--	--	--
Chromic oxide content	24	--	--	--	--
More than 40% but less than 46% chromic oxide:					
Gross weight	7,940	97	348	187	1,100
Chromic oxide content	3,370	44	156	85	496
46% or more chromic oxide:					
Gross weight	165,000	9,950	6,250	274	66,400
Chromic oxide content	77,400	4,600	3,140	130	31,200
Total, all grades:					
Gross weight	173,000	10,000	6,600	461	67,500
Chromic oxide content	80,800	4,640	3,290	215	31,700
Ferrochromium:					
Low-carbon: ³					
Not more than 0.5%:					
Gross weight	19,500	1,980	5,920	1,120	17,800
Chromium content	13,300	1,360	4,000	772	12,100
More than 0.5% but not more than 3%:					
Gross weight	5,340	759	1,580	20	3,350
Chromium content	3,420	499	1,100	15	2,300
Total, low-carbon:					
Gross weight	24,900	2,730	7,510	1,140	21,200
Chromium content	16,800	1,850	5,100	787	14,400
High-carbon: ⁴					
Gross weight	366,000	21,900	50,800	22,100	199,000
Chromium content	210,000	11,700	28,800	11,200	109,000
Total, all grades:					
Gross weight	391,000	24,600	58,300	23,300	220,000
Chromium content	227,000	13,500	33,900	12,000	124,000
Chromium metal:					
Unwrought powders	1,810	154	96	99	877
Waste and scrap	284	2	--	20	49
Other than waste and scrap and unwrought powders	6,480	644	604	804	5,120
Total, all grades	8,570	800	700	923	6,040

-- Zero.

¹Data are rounded to no more than three significant digits; may not add to totals shown.

²May include revised data.

³Ferrochromium containing not more than 3% carbon.

⁴Ferrochromium containing more than 4% carbon.

Source: U.S. Census Bureau.

TABLE 6
U.S. IMPORTS FOR CONSUMPTION OF FERROCHROMIUM IN 2004, BY GRADE AND BY COUNTRY¹

Grade and country	July			January-July ²		
	Gross weight (metric tons)	Chromium content (metric tons)	Value ³ (thousands)	Gross weight (metric tons)	Chromium content (metric tons)	Value ³ (thousands)
High-carbon ferrochromium:⁴						
India	20	13	\$22	150	95	\$157
Kazakhstan	40	28	50	39,600	27,500	36,800
Malta and Gozo	--	--	--	60	36	42
Russia	--	--	--	2,270	1,490	2,030
Saudi Arabia	--	--	--	20	11	16
South Africa	22,100	11,200	13,700	134,000	66,900	74,400
Zimbabwe	--	--	--	22,500	13,300	13,700
Total	22,100	11,200	13,800	199,000	109,000	127,000
Low-carbon ferrochromium:⁵						
More than 0.5% but not more than 3% carbon						
Germany	--	--	--	63	44	72
Kazakhstan	--	--	--	2,020	1,400	3,520
Russia	20	15	47	963	668	1,410
South Africa	--	--	--	300	183	319
Total	20	15	47	3,350	2,300	5,320
Not more than 0.5% carbon:						
Belgium	--	--	--	100	70	139
China	--	--	--	120	77	196
Germany	243	171	471	2,200	1,550	3,600
Japan	220	154	491	1,120	796	2,550
Kazakhstan	--	--	--	150	106	165
Russia	469	332	691	11,700	8,070	15,700
South Africa	186	115	171	2,330	1,340	1,930
Turkey	--	--	--	100	70	192
Total	1,120	772	1,820	17,800	12,100	24,500
All grades:						
Belgium	--	--	--	100	70	139
China	--	--	--	120	77	196
Germany	243	171	471	2,260	1,590	3,670
India	20	13	22	150	95	157
Japan	220	154	491	1,120	796	2,550
Kazakhstan	40	28	50	41,800	29,000	40,400
Malta and Gozo	--	--	--	60	36	42
Russia	489	347	737	15,000	10,200	19,100
Saudi Arabia	--	--	--	20	11	16
South Africa	22,300	11,300	13,900	137,000	68,400	76,600
Turkey	--	--	--	100	70	192
Zimbabwe	--	--	--	22,500	13,300	13,700
Total	23,300	12,000	15,600	220,000	124,000	157,000

-- Zero.

¹Data are rounded to no more than three significant digits; may not add to totals shown.

²May include revised data.

³Customs import value generally represents a value in the foreign country and therefore excludes U.S. import duties, freight, insurance, and other charges incurred in bringing the merchandise into the United States.

⁴Ferrochromium containing more than 4% carbon.

⁵Ferrochromium containing not more than 3% carbon.

Source: U.S. Census Bureau.

TABLE 7
U.S. IMPORTS FOR CONSUMPTION OF CHROMIUM METAL IN 2004, BY GRADE AND BY COUNTRY¹

Grade and country	July		January-July ²	
	Gross weight (metric tons)	Value ³ (thousands)	Gross weight (metric tons)	Value ³ (thousands)
Unwrought powders:				
China	--	--	200	\$789
France	1	\$8	6	31
Germany	(4)	2	59	315
Japan	20	196	105	1,440
Russia	77	298	369	1,890
Spain	--	--	121	405
Taiwan	--	--	15	21
United Kingdom	(4)	33	3	325
Total	99	536	877	5,220
Waste and scrap:				
Germany	--	--	2	21
Japan	20	215	32	264
Malaysia	--	--	(4)	7
Singapore	--	--	9	64
Sweden	--	--	2	6
Taiwan	--	--	4	23
Total	20	215	49	384
Other than waste and scrap and unwrought powders:				
Austria	--	--	(4)	5
China	180	756	1,276	5,111
France	127	874	1,096	8,053
Germany	1	48	17	381
Hong Kong	--	--	4	9
Japan	(4)	11	1	56
Liechtenstein	(4)	10	(4)	10
Mexico	--	--	3	9
Netherlands	7	34	7	37
Russia	158	673	1,323	6,081
Switzerland	(4)	4	(4)	35
Taiwan	--	--	2	15
United Kingdom	331	1,840	1,390	7,662
Total	804	4,250	5,117	27,464
All grades:				
Austria	--	--	(4)	5
China	180	756	1,476	5,900
France	128	882	1,101	8,083
Germany	1	50	78	717
Hong Kong	--	--	4	9
Japan	40	422	138	1,764
Liechtenstein	(4)	10	(4)	10
Malaysia	--	--	(4)	7
Mexico	--	--	3	9
Netherlands	7	34	7	37
Russia	235	971	1,691	7,970
Singapore	--	--	9	64
Spain	--	--	121	405
Sweden	--	--	2	6
Switzerland	(4)	4	(4)	35
Taiwan	--	--	21	60
United Kingdom	332	1,872	1,392	7,988
Total	923	5,002	6,044	33,067

-- Zero.

¹Data are rounded to no more than three significant digits; may not add to totals shown.

²May include revised data.

³Customs import value generally represents a value in the foreign country and therefore excludes U.S. import duties, freight, insurance, and other charges incurred in bringing the merchandise into the United States.

⁴Less than 1/2 unit.

TABLE 8
U.S. TRADE OF STAINLESS STEEL, BY PRODUCT, IN 2004¹

Stainless steel product	June		January-June	
	Gross weight (metric tons)	Value ² (thousands)	Gross weight (metric tons)	Value ² (thousands)
Exports:				
Ingot	550	\$2,360	5,070	\$21,400
Flat-rolled (width > 600 mm)	12,600	26,700	95,400	222,000
Flat-rolled (width < 600 mm)	8,820	24,500	57,000	167,000
Bars and rods in irregular coils	325	1,180	2,040	7,210
Other bars and rods	1,930	9,950	13,400	73,100
Wire	654	4,660	4,880	32,500
Tubes, pipes, hollow profiles	2,650	13,600	20,000	93,300
Total	27,600	82,900	198,000	617,000
Stainless steel scrap	34,700	42,300	291,000	333,000
Grand total	62,300	125,000	488,000	950,000
Imports:				
Ingot	19,100	41,000	97,500	204,000
Flat-rolled (width > 600 mm)	28,800	63,100	178,000	399,000
Flat-rolled (width < 600 mm)	3,330	11,600	22,600	73,900
Bars and rods in irregular coils	3,600	9,040	22,800	54,200
Other bars and rods	5,350	17,600	36,400	107,000
Wire	3,380	12,900	21,800	79,700
Tubes, pipes, hollow profiles	7,440	35,200	48,700	216,000
Total	71,000	190,000	428,000	1,130,000
Stainless steel scrap	8,850	9,300	87,200	101,000
Grand total	79,900	200,000	515,000	1,230,000

¹Data are rounded to no more than three significant digits; may not add to totals shown.

²Export value is free alongside ship (f.a.s.). Import value is Customs import value, which generally represents a value in the foreign country and therefore excludes U.S. import duties, freight, insurance, and other charges incurred in bringing the merchandise into the United States.

Source: U.S. Census Bureau.

TABLE 9
CHROMITE ORE PRICES

(Dollars per metric ton, gross weight unless otherwise noted)

Week ending	Turkey ¹		South Africa ²				Philippines ³
	1	2	1	2	3	4	
2003:							
07/04	75	85	40 - 50	50 - 70	100 - 120	40 - 50	125 - 145
07/11	75	85					
07/18	75	85					
07/25	75	85					
08/01	75	85	40 - 50	50 - 70	100 - 120	40 - 50	125 - 145
08/08	83	93					
08/15	83	93					
08/22	83	93					
08/29	85	95					
09/05	85	95	40 - 50	50 - 70	100 - 120	40 - 50	125 - 145
09/12	85	95					
09/19	85	95					
09/26	90	100					
10/03	90	100	40 - 50	50 - 70	100 - 120	40 - 50	125 - 145
10/10	90	100					
10/17	90	100					
10/24	90	100					
10/31	90	105					
11/07	95	110	40 - 50	50 - 70	100 - 120	40 - 50	125 - 145
11/14	95	110					
11/21	95	110					
11/28	NA	NA					
12/05	100	120	50 - 65	80 - 90	100 - 120	50 - 60	125 - 145
12/12	100	120					
12/19	120	140					
12/26	NA	NA					
2004:							
01/02	NA	NA	50 - 60	80 - 90	100 - 120	50 - 60	125 - 145
01/09	125	150					
01/16	125	150					
01/23	135	155					
01/30	135	155					
02/06	135	155	50 - 65	80 - 90	100 - 120	50 - 60	125 - 145
02/13	135	155					
02/20	135	155					
02/27	135	155					
03/05	135	155	60 - 80	80 - 100	100 - 120	50 - 60	125 - 145
03/12	135	155					
03/19	135	155					
03/26	135	155					
03/05	135	155	60 - 80	80 - 100	100 - 120	50 - 60	125 - 145
03/12	135	155					
03/19	135	155					
03/26	135	155					
04/02	135	155	75 - 100	100 - 120	100 - 120	65 - 70	125 - 145
04/09	135	155					
04/16	135	155					
04/23	130	150					
04/30	130	150					
05/07	130	150	75 - 100	100 - 120	100 - 120	65 - 70	125 - 145
05/14	125	145					
05/21	120	140					
05/28	120	140					

See footnotes at end of table.

TABLE 9--Continued
CHROMITE ORE PRICES

(Dollars per metric ton, gross weight unless otherwise noted)

Week ending	Turkey ¹		South Africa ²				Philippines ³
	1	2	1	2	3	4	
2004:							
06/04	120	140	80 - 110	120 - 140	100 - 120	70 - 90	125 - 145
06/11	120	140					
06/18	115	130					
06/25	115	130					
07/02	115	130	80 - 110	120 - 140	100 - 120	70 - 90	125 - 145
07/09	115	130					
07/16	115	130					
07/23	120	135					
07/30	120	135					
08/06	120	135	85 - 120	125 - 150	100 - 120	75 - 95	125 - 145
08/13	120	135					
08/20	120	135					
08/27	120	135					
09/03	120	135	85 - 120	125 - 150	100 - 120	75 - 95	125 - 145
09/10	120	135					
09/17	120	135					
09/24	120	135					

NA Not available.

¹Turkish 1 (T1) is called 38% - 40% Cr₂O₃ by Ryan's Notes (RN); T2 is called 44% Cr₂O₃ by RN.

²South African 1 (SA1) is called chemical grade, 46% Cr₂O₃, wet bulk, free-on-board (f.o.b.) by Industrial Minerals (IM); SA2 is called foundry grade, 46% Cr₂O₃, wet bulk, f.o.b. by IM; SA3 is called refractory grade, 46% Cr₂O₃, wet bulk, f.o.b. by IM; SA4 is called metallurgical grade, friable lumpy, 40% Cr₂O₃ by IM.

³Philippines is called refractory grade, concentrates, f.o.b. by IM.